Panasonic

ideas for life

# AJ-HDX400

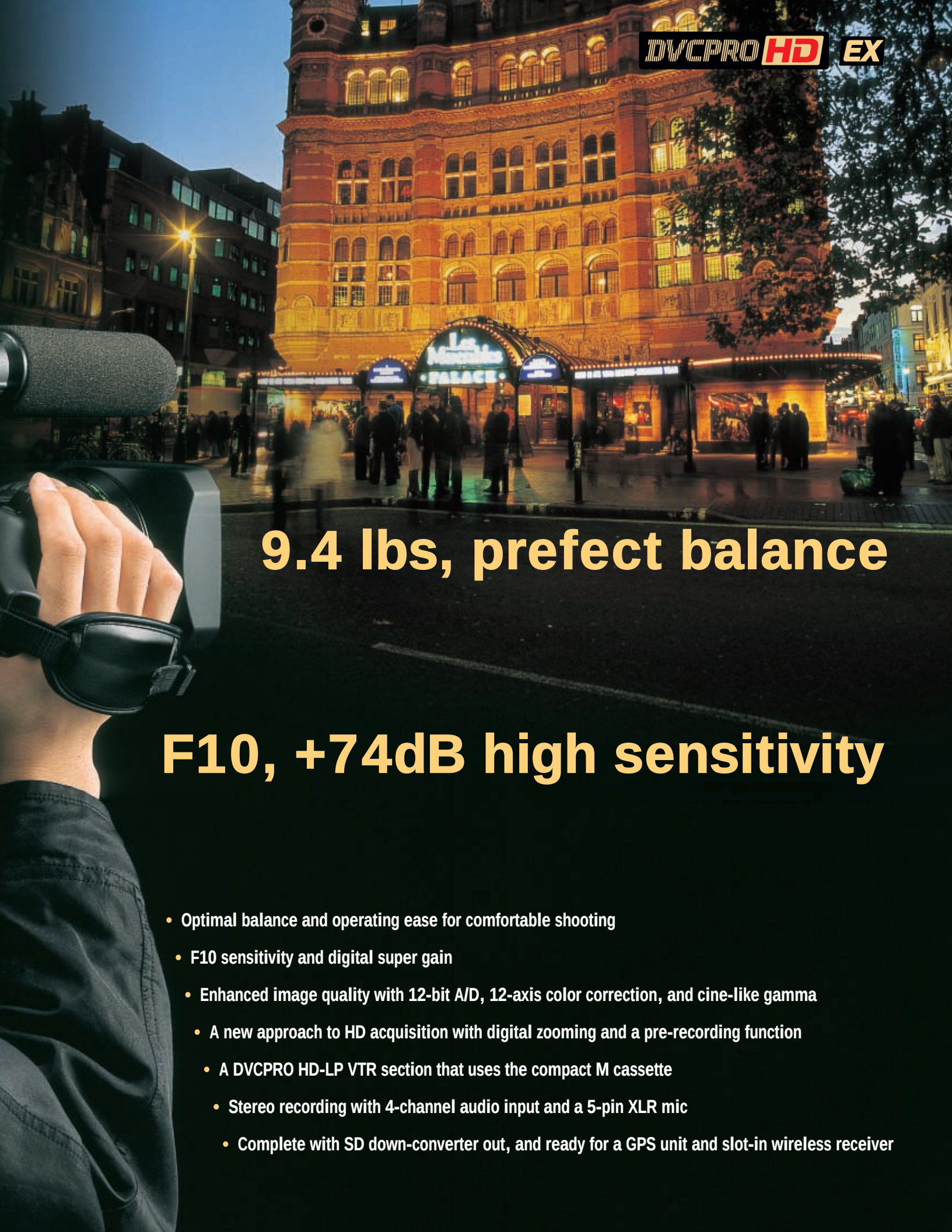
DVCPRO HD Camera-Recorder
(1080i)

DVCPRO HD EX

# A New Era of HD Acquisition

## Digital Super Gain and Easy Mobility Expand HD Acquisition Possibilities

The AJ-HDX400 was developed as a mainstream camera-recorder for HD acquisition and recording. Equipped with a host of new functions, including digital super gain (frame cumulative mode) and digital zoom, the camera section features high sensitivity and superb image quality. The compact, lightweight VTR section records in the DVCPRO HD-LP format. This new HD camera-recorder combines excellent balance, easy operation, and solid reliability. This adds up to a highly mobile system that brings new form to the time-proven concept that great results start with good camera work.




# 9.4 lbs, prefect balance

# F10, +74dB high sensitivity

- Optimal balance and operating ease for comfortable shooting
- F10 sensitivity and digital super gain
- Enhanced image quality with 12-bit A/D, 12-axis color correction, and cine-like gamma
- A new approach to HD acquisition with digital zooming and a pre-recording function
- A DVCPRO HD-LP VTR section that uses the compact M cassette
- Stereo recording with 4-channel audio input and a 5-pin XLR mic
- Complete with SD down-converter out, and ready for a GPS unit and slot-in wireless receiver

# HD Shooting with High Sensitivity, Superb Picture Quality

## F10 Sensitivity, Digital Super Gain, and Line Mix

Extremely bright for an HD camera, the AJ-HDX400's lens produces crisp images even in normal mode. It also features both conventional electronic gain and digital super gain (frame cumulative mode), enabling ultra-sensitive recording up to +74 dB*1. In contrast to the increased noise of electronic gain functions, this system maintains a high S/N*2. The line mix mode also accommodates moving images. Combine the digital super gain, conventional electronic gain, and line mix mode to respond flexibly to virtually all shooting situations.

Nomal Gain UP Image

Digital Super Gain UP Image

*1 Combining electronic gain with +48 dB, 6P cumulative mode with +20 dB, and line mix with +6 dB.

*2 The use of cumulative frames reduces the number of frames per second, giving moving images a frame-by-frame effect.

**Four Gain Settings**

| | |
|---|---|
| Gain selector: (electronic) | Select three values from –3/0/+3/+6/+9/+12/+15/+18/+21/+24/+27/+30 dB. |
| Super gain: (electronic) | Select one value from +30/+36/+42/+48 dB for one-touch gain increase. |
| Digital super gain : (frame cumulative mode) | Select one value from +6 dB(30P)/+10 dB(20P)/ +12 dB (15P)/+15 dB(10P)/+20 dB(6P) for one-touch registration. |
| Line mix gain: (electronic) | Switch ON and OFF from the menu for a +6 dB effect. |

## Newly Developed Progressive HD Shooting System

In this new system, a progressive CCD lets you shoot 60p images and use Progressive/Interline conversion to attain 1080/59.94i images. This makes it possible to get the similar level of image quality and low smear as you get with a 2-million pixel FIT CCD, by using a high-sensitivity, lower-cost IT CCD.

## 12-Bit A/D Signal Processing Circuit

The AJ-HDX400 features a new DSP circuit that uses 12-bit rather than conventional 10-bit processing for A/D conversion. This achieves better overall picture quality, with finer gradation and improved color expression.

## 400% Digital Zoom

You can digitally enlarge the CCD image to 200%, 300% or 400% of the normal lens magnification. HD images retain their superior resolution even with zooming, and — unlike when a lens extender is used — brightness is not reduced. Ideal as both a shooting technique and focusing support.

*Jagged edges typical of digital zooming appear in 3x and 4x zoom images.

## User Scene Files

Store specific camera settings in built-in memory, then retrieve them when needed for quick, easy setup. Four files with settings can be stored in the camera's memory. Files can also be copied onto an SD Memory Card or MultiMediaCard, allowing storage of up to eight files.

## Customized User Buttons

Three user buttons are provided. Assign a function to each for easy pushbutton selection: Super Iris, Super Gain, Digital Super Gain, Super Black, Black Stretch, Front/Rear Input Select of Audio CH1/CH2, etc. You can also customize the on-screen menu with the items you use most often, then display them by simply pressing a button.

## Built-in Image-Enhancing Circuits

- A cine-like gamma curve lets you create video productions that closely replicate the high-quality look and "feel" that distinguishes cinema film, suitable for a host of applications, from production of documentaries and commercials to music video clips.
- Built-in auto knee circuit produces a wide dynamic range.
- Versatile DTL functions, including skin DTL and continuously variable DTL peak frequency.
- Precise color management with Linear Matrix Color and 12 Axis Color Correction.
- Shading correction function that adjusts for use of a lens extender.

## Enhanced Camera Functions and Specifications

- The electronic shutter has speeds of 1/100, 1/120, 1/250, 1/500, 1/1000, and 1/2000 sec, plus synchro-scan capability (1/60.3 to 1/249.8 sec).
- ND filter (CLEAR, 1/4ND, 1/16ND, 1/64ND) and CC filter (Cross, 3200K, 4300K, 6300K).
- Select from a variety of finder markers, or make your own.
- Display a zebra pattern for contrast adjustment, Auto White Balance setting, and color bar output.
- One touch of the mode check button displays the camera settings for easy confirmation.

# Body Design

## Engineered for Optimal Balance and Operating Ease

### Lightweight, Well Balanced Body

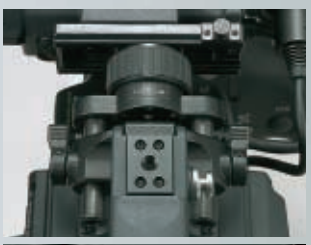
The AJ-HDX400 offers a lightness in operation that is not entirely reflected in its 9.4 lbs (4.3 kg) weight. Designed specifically to provide excellent balance while shooting, it doesn't become front-heavy when equipped with lens, battery, and wireless receiver. Camera work is comfortable because the AJ-HDX400 maintains a natural, horizontal position when held on the shoulder or lifted by the handle. The body height is also minimized to give the operator a clear view front and rear.

### Designed for Ease of Operation

The position, function, and shape of all switches, dials and terminals have been designed in response to feedback from ENG professionals to allow quick operation and prevent errors for greater reliability.

- The Audio Rec level adjustment (rear, CH1/CH2) features a push lock function.
- An LCD panel with a wide viewing angle provides greater visibility for high- and low-angle shots.
- The Audio Input level adjustment (front) can be switched ON/OFF and allocated to the desired channels by menu operation. A dial can also be mounted for this purpose.
- One of the three user buttons can be isolated as a USER MAIN button for easy blind-touch operation.

### New Mechanisms with Rugged Mobility



- The Easy-Slide Shoulder Pad slides up to 1.18" (30mm) in 10 steps. Requiring no tools, the pad can be slid with one hand, and securely locked in position.
- A new 3-point locking viewfinder mount allows precise adjustment in only forward/backward or only right/left directions.

# Digital HD VTR and System Functions

## Compact, Lightweight DVCPRO HD-LP Recorder

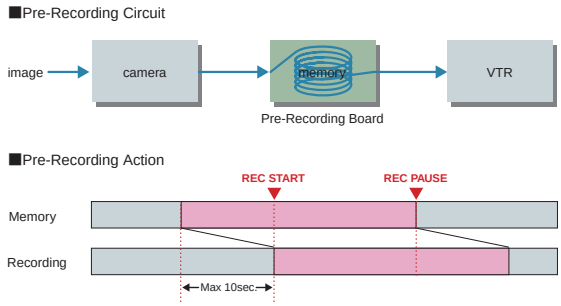
The DVCPRO HD-LP format lets you record up to 33 minutes onto a compact M-size cassette (using the AJ-HP33EMG). A 100-Mbps bit rate and highly efficient compression ratio combine to record 1080i HD images in high-quality digital component signals. A unique recording head structure achieves the same 9,000 rpm head cylinder rotation as in the DVCPRO50 format. This results in extremely quiet operation while recording.

*DVCPRO HD-LP tapes recorded with the AJ-HDX400 cannot be played on a conventional DVCPRO HD VTR (AJ-HD150/AJ-HD130DC).

## Four Channel Digital Audio

The AJ-HDX400 can record full 48-kHz/16-bit digital audio on all four channels. You can freely select the audio source for each channel, choosing from mic, line, wireless receiver, and others. A 5-pin XLR jack with 2-channel compatibility is used for the front mic input. Using a stereo microphone (AJ-MC900G, sold separately) lets you record stereo with a single mic.

## Pre-Recording and Other Versatile Recording Functions




- **PRE REC:** While in standby mode, you can continuously store, and subsequently record, up to 10 seconds of images and sounds. In effect, this lets you record footage of events that occur even before you press the rec start button, giving you a way to "go back" and capture moments you otherwise would have missed.
- **RETAKE:** Simply press the MODE CHECK and RET buttons at the same time to retake and overwrite the cut that was recorded immediately before.
- **INTERVAL REC:** The interval REC function is ideal for time lapse recording, such as in environmental, scientific or industrial applications calling for observation or surveillance.

## HD SDI Output and SD Down-Convert Output Provided

A standard HD SDI output is provided for use in monitoring and line recording. A down-converter is also built into the AJ-HDX400 for SD (NTSC) output. The aspect mode can be selected at the camera-recorder. Naturally, the monitor can also be used for live transmission.

## UniSlot® Wireless Receiver

For even greater mobility in news gathering applications, the AJ-HDX400 can be integrated with an optional slot-in type wireless receiver.

*UniSlot® is a trademark of Ikegami Tsusinki Co., Ltd.

## GPS Unit

By mounting the optional AJ-GPS900G GPS unit, the AJ-HDX400 can record real-time position data (latitude, longitude, and altitude) onto the tape, conforming to UMID standards.

## Power-Save Management (SAVE REC) Function

This function reduces power consumption during recording to a low 35.5 watts by interrupting playback-related circuits. Output to the HD SDI OUT terminal can also be stopped to allow operation with less power consumption.

## Other Functions

- Color bar (switchable between SMPTE, ARIB, and full color) and standard audio signal (1-kHz test tone) output
- Built-in SMPTE time code generator/reader, with time code In/Out terminal
- Simple camera remote, which connects to the optional AJ-EC3P Extension Control Unit (ECU)
- Rec Review function for easy checking of recorded results
- Multiple battery support, including Anton Bauer batteries

Side Operation and LCD Panel

Front Operation

Rear Side Connectors

Rear Connectors

# Accesories

**AJ-HVF20BP**
2" HD EVF 16:9/4:3 switchable

**AJ-MC900G**
Stereo Microphone (5-pin)

**AJ-MH800G**
Microphone Holder

Anton/Bauer Ultra Light

**AJ-GPS900G**
GPS Unit

**SHAN-TM700**
Tripod Adapter

**AJ-B75**
AC Adapter

**SD Memory Card**

**AJ-EC3P**
Extension Control Unit

Anton/Bauer Battery Charger
Package HTP-T230

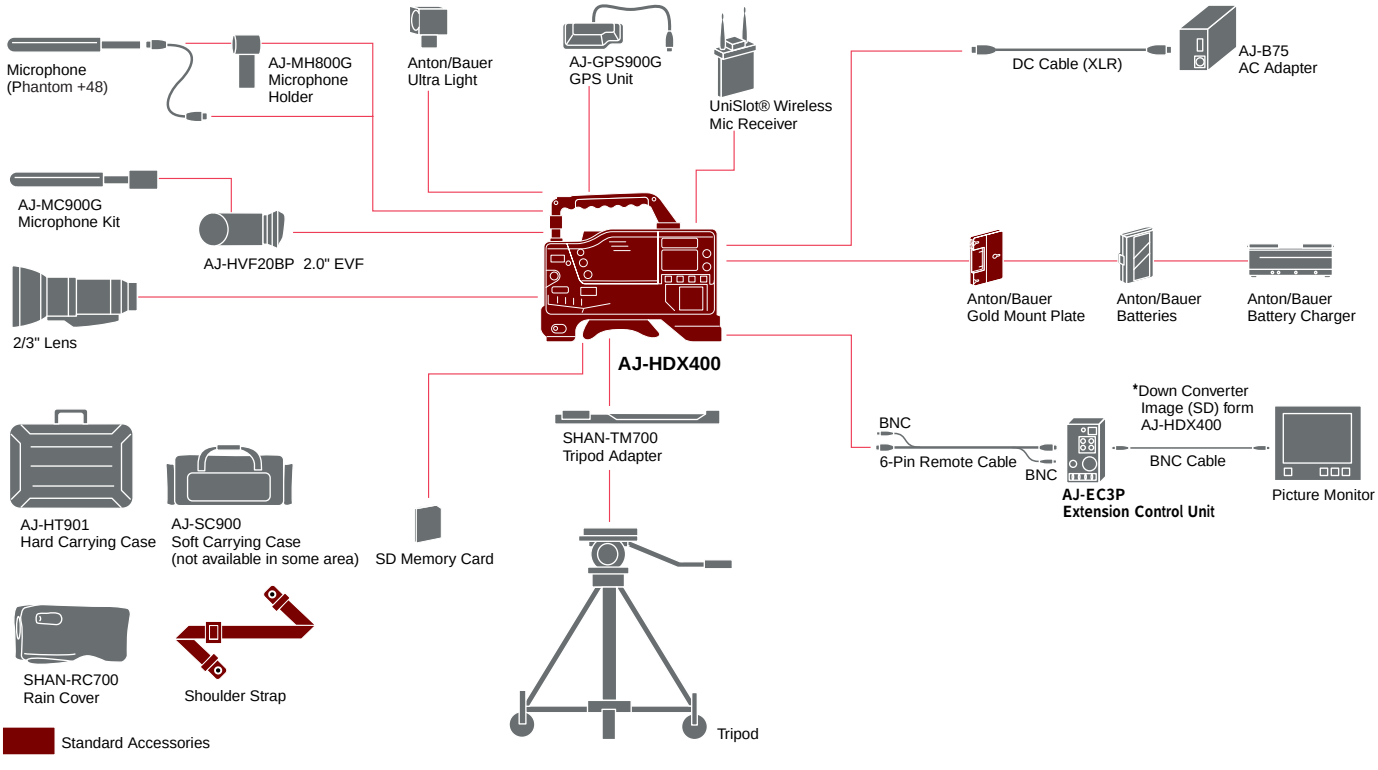
Anton/Bauer Dionic

Anton/Bauer Battery Charger

**AJ-SC900**
Soft Carrying Case
(Not available in some area)

**AJ-HT901G**
Hard Carrying Case
(Not available in some area)

**SHAN-RC700**
Rain Cover
(Not available in some area)



# SPECIFICATIONS

### General

| | |
|---|---|
| Power Supply: | DC 12 V (11 V to 17 V) |
| Power Consumption: | 37 W |
| Operating Humidity: | 10 % to 85 % |
| Operating Temperature: | 32°F to 104°F (0°C to +40°C) |
| Dimensions : (W x H x D) | 5-1/16" x 8-1/16" x 12-3/8" (129 x 204 x 313 mm) |
| Weight: | About 9.4lbs (4.3 kg) About 16.7lbs (7.6 kg) operation |
| Continuous Rec Time: | About 120 min. with Anton/Bauer Dionic 80/80W |

### Camera Section

| | |
|---|---|
| CCD Elements: | 2/3" HD Progressive CCD |
| Picture Elements: | Total: 1370 (H) x 744 (V) Effective: 1280 (H) x 720(V) |
| Optical System: | F 1.4 prism system |
| Optical Filters: | CC: Cross, 3200K, 4300K, 6300K ND: CLEAR, 1/4ND, 1/16ND, 1/64ND |
| Quantization: | 12 bits |
| Sampling Frequency: | 74 MHz |
| Programmable Gain: | –3/0/+3/+6/+9/+12/+15/+18/+21/+24/+27/+30 dB |
| Super Gain: | +30/+36/+42/+48 dB |
| Digital Super Gain: | +6/+10/+12/+15/+20 dB |
| Line Mix Gain: | +6 dB (On/Off) |
| Shutter Speed: | 1/100, 1/120, 1/250, 1/500, 1/1000 and 1/2000 sec. |
| Syncro Scan Shutter: | 1/60.3 to 1/249.8 sec. |
| Sensitivity: | F10.0 at 2000 Lux, 89.9% reflect |
| Minimum Illumination: | 0.008 Lux at +48 dB +20 dB +6 dB Gain |
| Video S/N: | 54 dB (typical) |
| Horizontal Resolution: | 700 TV lines at centre |
| Registration Error: | Less than 0.03 % (whole zone, without lens distortion) |
| Lens Mount: | 2/3" Bayonet type |

### VTR Section

| | |
|---|---|
| Recording Fromat: | DVCPRO HD-LP (1080, 59.94i) |
| Tape: | 6.35 mm wide metal tape (DVCPRO HD M cassette) |
| Tape Speed: | 67.640 mm/s |
| Max Rec Time: | Approx. 33 min (using AJ-HP33EMG) |
| FF/REW Time: | About 1.5 min. (using AJ-HP33EMG) |
| Pre-Recording Time: | Max. 10 sec |

### Video

| | |
|---|---|
| Sampling Frequency: | Y: 74 MHz, PB/PR: 37 MHz |
| Quantization: | 8 bits |
| Compression Method: | DCT and Variable-length Coding |
| Compression Ratio: | 6.7:1 |
| Error Correction: | Reed Solomon Product Code |
| Bit Rate: | 100 Mbps |

### Audio

| | |
|---|---|
| Sampling Frequency: | 48 kHz (sync. with video) |
| Quantization: | 16 bits |
| Frequency Response: | 20 Hz to 20 kHz, ±1.0 dB (reference level) |
| Dynamic Range: | More than 85 dB (1kHz, AWTD) |
| Distortion: | Within 0.1% (1 kHz, reference level) |
| Wow & Flutter: | Below measurable limit |
| Head Room: | 20 dB |

### Input

| | |
|---|---|
| Audio IN: | XLR-3pin x 2 (CH1/CH2), LINE/MIC/MIC +48 V switchable LINE: 0/+4 dBu, MIC: –60/–50 dBu, MIC+48V:Phantom +48 V, –50/–60 dBu, |
| MIC IN: | XLR-5pin x 1, Stereo, –40/–50 dBu, Phantom +48 V |
| Wireless IN: | 25pin D-sub, –40 dBu |
| Genlock IN: | BNC x 1, HD/SD (V lock) |
| TC IN: | BNC x 1, 0.5 to 8.0 Vp-p, high impedance |

### Output

| | |
|---|---|
| HD SDI OUT: | BNC x 1, 0.8Vp-p |
| Video OUT: | BNC x 1, SD Composite (Down Convert Out) |
| Audio OUT: | XLR-5pin x 1/+4 dBm |
| TC OUT: | BNC x 1, 2.0 Vp-p, low impedance |
| Phones: | Stereo mini jack x 2 (Front/Rear) |

### Others

| | |
|---|---|
| DC IN: | XLR-4pin, DC12 V (DC11V to 17 V) |
| DC OUT: | 4pin x 1, DC12V (DC11V to 17 V), 1 A |
| Lens: | 12pin x 1 |
| ECU: | 6pin x 1 |
| EVF: | 20pin x 1 |
| Receiver *: | UniSlot® Wireless Receiver |

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*UniSlot® is a trademark of Ikegami Tsusinki Co., Ltd.

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